

**IN THE CLAIMS**

1. (Currently amended) An extended coverage sidewall automatic fire sprinkler comprising:

a generally tubular body with a central passageway and a central axis, one end of the passageway forming an outlet at one end of the tubular body,

a closure at the one end of the tubular body at least essentially generally closing the passageway,

a trigger positioned to releasably retain the closure at the outlet closing the passageway, and

a deflector at a discharge end of the sprinkler, the deflector being coupled with the tubular body adjoining a yoke, the yoke having a knuckle with a boss, the deflector facing and spaced axially away from the outlet and intersecting the central axis, the tubular body having a K factor greater than 9, the deflector being symmetrical about an imaginary vertical plane passing through the central axis, the deflector including a first arm, a second arm and a generally planar face portion generally orthogonal to the central axis, the face portion having a perimeter that circumscribes a single face portion opening within the perimeter axially aligned with the central axis and engaged with ~~a portion of the~~ boss of the knuckle [[yoke]] so that the boss extends through the single face portion opening to space the face portion from the outlet, the deflector being further divided by an imaginary horizontal plane passing through the central axis and orthogonal to the vertical plane, the face portion further including an upper edge above the horizontal plane and a lower edge that extends parallel to and below the horizontal plane perpendicular to the vertical plane, the face portion having a bottom center extending below the horizontal plane and centrally axially aligned along the vertical plane with the face portion opening so as to locate the lower edge as a portion of the deflector most remotely below the horizontal plane, the deflector further including a canopy portion spaced from the upper edge so as to define a perimeter of a flow passage through the deflector, the flow passage consisting of a single flow opening in the deflector for fluid to pass the canopy portion being supported by the first and second arms and being coupled to the face portion at a first canopy end and extending generally along the central axis away from the outlet towards a free end, the first canopy end being spaced at a first distance from the outlet, the free end defining a linear profile the entire

length from the first arm to the second arm extending parallel to the horizontal plane and spaced from the outlet at a second distance greater than the first distance, and the deflector being shaped and positioned so that upon release of the closure by the trigger, the deflector transforms water discharged horizontally from the outlet into a spray pattern of water droplets dispersed over a generally horizontal, generally rectangularly-shaped extended coverage area of more than one hundred square feet located on one side of the sprinkler effective to control an ordinary hazard fire in the coverage area, and when the sidewall fire sprinkler is paired with an identical sidewall fire sprinkler mounted approximately sixteen feet apart on a generally planar wall surface with a collection area of approximately sixteen feet between the sprinklers and sixteen feet away from one of the sprinklers, the collection area located at either one of a distance of about thirty-six inches and a distance of approximately six feet and 7.5 inches below each of the sidewall fire sprinklers so that water is delivered to the collection area at an average density of at least about 0.15 gallons per minute per square feet.

2. (Currently amended) The sprinkler of claim 1, wherein the ~~tubular body has~~ K factor greater than 9 comprises a K factor of between 10 and 13, both inclusive.
3. (Currently amended) The sprinkler of ~~claim 2,~~ claim 1, wherein the K factor greater than 9 comprises a K factor that is between 11 and 12, both inclusive.
4. (Original) The sprinkler of claim 1, wherein the trigger is a liquid-filled glass bulb.
5. (Currently amended) The sprinkler of claim 1, wherein the ~~generally-rectangular-shaped~~ coverage area receiving water from said sidewall sprinkler is up to about two hundred and fifty six square feet in size.
6. (Currently amended) The sprinkler of ~~claim 5,~~ claim 1, wherein the ~~generally-rectangularly shaped~~ coverage area receiving water from said sidewall sprinkler is up to about three hundred and twenty square feet in size.

7. (Currently amended) The sprinkler of claim 1, wherein the ~~generally rectangularly shaped~~ coverage area is more than three hundred and twenty and up to about three hundred eighty four square feet in size.

8. (Currently amended) The sprinkler of ~~claim 7,~~ claim 1, wherein the ~~generally rectangularly shaped~~ coverage area is about three hundred and eighty-four square feet in size.

9. (Previously Presented) The sprinkler of claim 1, wherein the coverage area is at least sixteen feet by sixteen feet and up to about sixteen feet by twenty four feet.

10. (Previously Presented) The sprinkler of claim 9, wherein the coverage area is about sixteen feet by eighteen feet in size.

11. (Currently amended) The sprinkler of ~~claim 10,~~ claim 9, wherein the coverage area is about sixteen feet by twenty feet in size.

12-13. (Canceled)

14. (Currently amended) The sprinkler of claim 1, wherein the face portion is positioned facing and spaced axially away from the outlet along the central axis so as to perpendicularly intersect ~~the column~~ a column of water issuing from the outlet along the central axis and the canopy portion being supported on one side of the face portion spanning the face portion, the canopy portion being generally parallel with the central axis and perpendicular to the face portion, the face portion and canopy portion being configured to deliver water to the coverage area in a density of at least 0.15 and up to about 0.20 gallons per minute/ft<sup>2</sup> to achieve a generally planar spray pattern of water droplets generally parallel to a major side of the canopy portion facing the central axis, the spray pattern extending up to about twenty feet beyond the face portion and up to about eight feet to either lateral side of the central axis when the sprinkler is positioned with the central axis horizontal and the major side of the canopy portion facing the central axis being generally horizontal and above the central axis whereby said sprinkler is effective in controlling

ordinary hazard fires over ~~an extended coverage area of more than one hundred square feet and up to about three hundred eighty four square feet when pressurized to supply water at a rate of between about 0.15 and about 0.20 gallons per minute/ft<sup>2</sup> times the size of the coverage area in square feet~~ the coverage area.

15. (Previously presented) The sprinkler of claim 14, wherein the coverage area is at least three hundred and twenty square feet and up to about three hundred eighty four square feet.

16–19. (Canceled)

20. (Currently amended) ~~A sidewall automatic fire sprinkler comprising:~~ The sprinkler of claim 1, wherein the

~~a generally tubular body with a central passageway and a central axis, one end of the passageway forming an outlet at one end of the tubular body, the tubular body having a K factor greater than 9 gpm/(psi)<sup>1/2</sup>, the body adjoining a yoke having a knuckle spaced from the outlet,~~

~~a closure at the one end of the tubular body closing the passageway,~~

~~a thermally responsive trigger positioned to releasably retain the closure at the outlet closing the passageway before activation of the trigger by heat, and~~

~~a deflector at a discharge end of the sprinkler, the deflector being coupled with the yoke facing and spaced axially away from the outlet, the deflector being symmetrical about an imaginary vertical plane and divided by an imaginary horizontal plane that is orthogonal to the vertical plane, the central axis defining the intersection between the vertical and horizontal planes, the deflector having a first arm, a second arm and a generally planar face portion oriented generally perpendicular with respect to the central axis, the face portion having a face portion opening engaged with the knuckle to support the face portion spaced from the outlet, the face portion having an upper edge located above the horizontal plane and a lower edge located below the horizontal plane extending parallel to the horizontal plane and perpendicular to the vertical plane, the face portion having a bottom center extending below the horizontal plane centrally axially aligned with the face portion opening along the vertical plane so as to locate the lower~~

~~edge as a portion of the deflector most remotely below the horizontal plane, the deflector further including a canopy portion supported by the first and second arms of the deflector spaced from the upper edge and is oriented generally parallel to the central axis, the canopy portion being coupled to the face portion at a first canopy end so as to define a single flow opening of the deflector through which water can pass, the canopy extending generally along the axis away from the outlet towards a free end, the first canopy end being spaced at a first distance from the outlet, the free end defining a linear profile extending the entire length from the first arm to the second arm parallel to the horizontal plane and spaced from the outlet at a second distance greater than the first distance, the deflector further being configured, with the sprinkler in a normal operating orientation with the central axis generally horizontal and the canopy portion generally centered over the face portion, so that after activation of the sprinkler, the deflector transforms water discharged through the outlet of the sprinkler substantially uniformly over a coverage area generally rectangular in shape, the coverage area being more than one hundred square feet in size and being located generally symmetrically with respect to the central axis, the coverage area extending from the deflector in a direction away from the orifice, and when the sidewall fire sprinkler is paired with an identical sidewall fire sprinkler mounted approximately sixteen feet apart on a generally planar wall surface with a collection area of approximately sixteen feet between the sprinklers and sixteen feet away from one of the sprinklers, the collection area located at either one of a distance of about thirty six inches and a distance of approximately six feet and 7.5 inches below each of the sidewall fire sprinklers so that water is delivered to the collection area at an average density about 0.15 gallons per minute per square feet.~~

21. (Currently amended) The ~~sidewall automatic fire~~ sprinkler of claim 20 wherein the deflector is further configured, with the sprinkler in the normal orientation with the canopy portion generally horizontal and above the face portion of the deflector, to deliver after release of the closure, water supplied through the tubular body at a rate of at least 0.15 and up to about 0.20 gallons per minute per square foot for each square foot of the coverage area, sufficiently uniformly over the coverage area to control an ordinary hazard fire located anywhere within the coverage area with only the supplied water, with the coverage area being more than one hundred

square feet and up to about three hundred eighty four square feet and located at a height of only three feet below the canopy portion of the deflector.

22. (Currently amended) The ~~sidewall automatic fire~~ sprinkler of claim 21 wherein the coverage area is up to sixteen feet wide and at least sixteen and up to about twenty four feet long.

23. (Currently amended) The ~~sidewall automatic fire~~ sprinkler of claim 22 wherein the coverage area is about sixteen feet wide and more than sixteen and up to about twenty-four feet long.

24. (Currently amended) ~~An extended coverage sidewall automatic fire sprinkler comprising:~~  
The sprinkler of claim 1, wherein

~~a generally tubular body with a central passageway being disposed along a central axis and forming an outlet at an end of the generally tubular body, the central passageway having~~  
a the K factor greater than 9 comprises a K factor greater than 9 and up to about 14;

~~a closure located at the end of the generally tubular body;~~

~~a trigger positioned to releasably retain the closure to occlude the outlet;~~

the sprinkler further comprises two frame arms coupled to the generally tubular body proximate the outlet, the two frame arms being located on a plane which intersects the central axis to define ~~a knuckle~~ the knuckle;

~~a deflector being coupled with the tubular body by the two frame arms along the central axis and spaced axially away from the outlet so that upon release of the closure by the trigger, the deflector transforms water discharged horizontally from the outlet into a spray pattern of water droplets dispersed over a generally horizontal, generally rectangularly shaped extended~~  
the coverage area of is at least two hundred fifty-six and up to about three-hundred eighty four square feet on one side of the sprinkler in an amount and with a distribution effective to control an ordinary hazard fire in the coverage area; and

~~wherein the deflector is symmetrical about an imaginary vertical plane and divided by an imaginary horizontal plane that is orthogonal to the vertical plane, the central axis defining the intersection between the vertical and horizontal planes, the deflector includes a first arm, a second arm and a generally planar face portion oriented generally perpendicular with~~

~~respect to the central axis, the face portion having a face portion opening engaged with the knuckle to support the face portion spaced from the outlet, the face portion having an upper edge located above the horizontal plane and a lower edge located below the horizontal plane and extending parallel to the horizontal plane and perpendicular to the vertical plane, the face portion having a bottom center extending below the horizontal plane centrally axially aligned with the face portion opening along the vertical plane so as to locate the lower edge as a portion of the deflector most remotely below the horizontal plane, the deflector further including a canopy portion oriented generally parallel to the central axis, the canopy portion having a free end defining a linear profile extending the entire length between the first arm and the second arm parallel to the horizontal plane, the canopy further having a generally flat planar surface substantially parallel to the plane on which the frame arms are located, the first and second arms of the deflector coupling the canopy to the face portion spaced from the upper edge to define a single flow opening of the deflector, and when the sidewall fire sprinkler is paired with an identical sidewall fire sprinkler mounted approximately sixteen feet apart on a generally planar wall surface with a collection area of approximately sixteen feet between the sprinklers and sixteen feet away from one of the sprinklers the collection area located at either one of a distance of about thirty six inches and a distance of approximately six feet and 7.5 inches below each of the sidewall fire sprinklers so that water is delivered to the collection area at an average density of about 0.15 gallons per minute per square feet.~~

25. (Currently Amended) ~~An extended coverage sidewall automatic fire sprinkler comprising:~~The sprinkler of claim 1, wherein

~~a generally tubular body with a passageway being disposed along an axis and forming an outlet at an end of the generally tubular body, the passageway having a the K factor greater than 9 comprises~~ a K factor greater than 9 and up to about 14, and where the K factor represents a flow of fluid in gallons per minute through the passageway divided by the square root of the pressure of fluid fed to the generally tubular body in pounds per square inch gauge;

~~a closure proximate the end of the generally tubular body;~~

~~a trigger that retains the closure to occlude the outlet until actuation of the trigger;~~

~~and~~

~~a deflector being coupled with a yoke adjoining the tubular body and spaced axially away from the outlet, the deflector being symmetrical about an imaginary vertical plane and divided by an imaginary horizontal plane that is orthogonal to the vertical plane, the axis defining the intersection between the vertical and horizontal planes, the deflector further including a first arm, a second arm and a face portion oriented generally perpendicular with respect to the axis, the face portion having a face portion opening coupled to the yoke to support the face portion spaced from the outlet, the face portion having an upper edge located above the horizontal plane and a lower edge located below the horizontal plane extending parallel to the horizontal plane and perpendicular to the vertical plane, the face portion having a bottom center extending below the horizontal plane centrally axially aligned with the face portion opening along the vertical plane so as to locate the lower edge as a portion of the deflector most remotely below the horizontal plane, the deflector further including a canopy portion supported by the first and second arm spaced from the upper edge and oriented generally parallel to the axis so as to define a single flow opening of the deflector through which water can pass, the canopy portion having a free end defining a linear profile extending the entire length between the first arm and the second arm parallel to the horizontal plane, the canopy further having a surface distal to the outlet consisting of a generally flat surface generally perpendicular to the vertical plane, and when the sidewall fire sprinkler is paired with an identical sidewall fire sprinkler mounted approximately sixteen feet apart on a generally planar wall surface with a collection area of approximately sixteen feet between the sprinklers and sixteen feet away from one of the sprinklers, the collection area located at either one of a distance of about thirty six inches and a distance of approximately six feet and 7.5 inches below each of the sidewall fire sprinklers so that water is delivered to the collection area at an average density of about 0.15 gallons per minute per square feet.~~

26. (Currently amended) The sprinkler of ~~claim 25~~, claim 24, wherein the two frame arms and their plane are parallel to an area to be protected.

27. (Previously Presented) The sprinkler of claim 25, wherein the first and second arms of the deflector couple the flat canopy and the face portion of the deflector.



28. (Previously Presented) The sprinkler of claim 25, wherein the first and second arms of the deflector frame the single flow opening through the deflector.

29. (Currently amended) The sprinkler of ~~claim 25,~~ claim 1, wherein the first and second arms of the deflector are spaced apart by about 1.5 inches.

30. (Canceled)

31. (Currently amended) The sprinkler of ~~claim 30,~~ claim 1, wherein the canopy portion comprises a distal surface oriented in one orientation generally parallel to or oblique to the axis and the horizontal plane.

32. (Currently amended) The sprinkler of ~~claim 30,~~ claim 29, wherein the amount of water being discharged is at a density of at least 0.15 and up to about 0.20 gallons per minute per square feet.

33. (Previously Presented) The sprinkler of claim 32, wherein the amount of water being discharged is at a density of about 0.20 gallons per minute per square feet.

34. (Previously Presented) The sprinkler of claim 33, wherein the extended-coverage area is greater than 100 square feet and up to about 384 square feet.

35. (Previously Presented) The sprinkler of claim 33, wherein the water flow from the outlet is at least 38 gallons per minute and up to about 48 gallons per minute.

36. (Currently amended) The sprinkler of claim 33, wherein the extended-coverage area ~~including~~ includes a length and a width, each of the length and the width being greater than 10 feet and up to about 24 feet.

37. (Currently amended) The sprinkler of claim 36, wherein ~~the extended coverage including a length and a width, one of the length and the width being at least 16 feet and up to about 24 feet~~ such that the extended-coverage area is at least 256 square feet and up to about 384 square feet.

38. (Previously Presented) The sprinkler of claim 37, wherein the extended-coverage area is at least 320 and up to about 384 square feet.

39. (Currently amended) The sprinkler of claim 33, wherein the K factor greater than 9 comprises a K factor that is about 11 or greater.

40. (Currently amended) The sprinkler of ~~claim 39, claim 33,~~ wherein the K factor greater than 9 comprises a K factor that is about 14.

41. (Previously Presented) The horizontal sprinkler of claim 31, wherein the canopy portion including a generally rectangular shaped perimeter having a length along the axis of about 1.1 inches or more and a width orthogonal to the axis of about 1.5 inches or more.

42. (Canceled)

43. (Currently amended) The sprinkler of ~~claim 42, claim 1,~~ wherein the deflector transforms water being discharged from the outlet so as to provide a density of about 0.20 gallons per minute per square feet.

44. (Previously Presented) The sprinkler of claim 43, wherein the deflector transforms water being discharged from the outlet at a rate of at least 38 gallons per minute and up to about 48 gallons per minute.

45. (Currently Amended) ~~An extended coverage, horizontal sidewall automatic fire sprinkler comprising:~~ The sprinkler of claim 1, wherein

~~a generally tubular body defining a passageway along an axis and forming an outlet at an end of the generally tubular body, the passageway having a the K factor greater than 9 comprises a K factor greater than 9 and up to about 14, where the K factor represents a flow of fluid in gallons per minute through the passageway divided by the square root of the pressure of fluid fed to the generally tubular body in pounds per square inch gauge; and~~

~~the sprinkler further comprises a frame arm being coupled to the end of the generally tubular body, the frame arm being located generally on a horizontal plane, which is generally parallel to an area to be protected;~~

~~a closure proximate the end of the generally tubular body;~~

~~a heat responsive trigger that retains the closure to occlude the passageway until actuation of the trigger; and~~

~~a deflector assembly being symmetrical about an imaginary vertical plane and divided by an imaginary horizontal plane that is orthogonal to the vertical plane, the axis defining the intersection between the vertical and horizontal planes, the deflector assembly having a first arm, a second arm and a generally planar face portion generally orthogonal to the axis, the face portion having a face portion opening engaged with the frame arm to support the face portion spaced from the outlet, the face portion having an upper edge located above the horizontal plane and a lower edge located below the horizontal plane extending parallel to the horizontal plane and perpendicular to the vertical plane, the face portion having a bottom center extending below the horizontal plane centrally axially aligned with the face portion opening along the vertical plane so as to locate the lower edge as a portion of the deflector most remotely below the horizontal plane, the deflector assembly further including a canopy portion supported by the first and second arms spaced from the upper edge and being coupled to the face portion at a first canopy end to define a single flow opening of the deflector for water to pass through, the canopy portion extending generally along the axis away from the outlet towards a free end, the first canopy end being spaced at a first distance from the outlet, the free end defining a linear profile extending the entire length from the first arm to the second arm parallel to the horizontal plane and spaced from the outlet at a second distance greater than the first distance, the deflector assembly being coupled to the generally tubular body by the frame arm so as to be spaced from the outlet along the axis so that when the heat responsive trigger is actuated, the closure is~~

~~positioned to allow a flow of fluid to issue horizontally from the outlet of the generally tubular body over an extended coverage area, and when the sidewall fire sprinkler is paired with an identical sidewall fire sprinkler mounted approximately sixteen feet apart on a generally planar wall surface with a collection area of approximately sixteen feet between the sprinklers and sixteen feet away from one of the sprinklers, the collection area located at either one of a distance of about thirty six inches and a distance of approximately six feet and 7.5 inches below each of the sidewall fire sprinklers so that water is delivered to the collection area at an average density of about 0.15 gallons per minute per square feet.~~

46. (Currently amended) ~~An extended coverage, horizontal sidewall automatic fire sprinkler comprising:~~The sprinkler of claim 1, wherein

~~a generally tubular body defining a passageway along an axis and forming an outlet at an end of the generally tubular body, the passageway having a the K factor greater than 9 comprises a K factor greater than 9 and up to about 14, where the K factor represents a flow of fluid in gallons per minute through the passageway divided by the square root of the pressure of fluid fed to the generally tubular body in pounds per square inch gauge;~~

~~the sprinkler further comprises a frame arm being coupled to the end of the generally tubular body, the frame arm being located generally on a vertical plane, which is generally perpendicular to an area to be protected; and~~

~~a closure proximate the end of the generally tubular body;~~

~~a heat responsive trigger that retains the closure to occlude the passageway until actuation of the trigger; and~~

~~a deflector assembly being symmetrical about an imaginary vertical plane and divided by an imaginary horizontal plane that is orthogonal to the vertical plane, the axis defining the intersection between the vertical and horizontal planes, the deflector assembly coupled to the generally tubular body by the frame arm so as to be spaced from the outlet along the axis so that when the heat responsive trigger is actuated, the closure is positioned to allow a flow of fluid to issue horizontally from the outlet of the generally tubular body over an extended coverage area, the deflector having a first arm, a second arm and a generally planar face portion extending generally orthogonal to the axis, the face portion having a face portion opening~~

~~engaged with the frame arm to support the face portion spaced from the outlet, the face portion having an upper edge located above the horizontal plane and a lower edge located below the horizontal plane extending parallel to the horizontal plane and perpendicular to the vertical plane, the face portion having a bottom center extending below the horizontal plane centrally axially aligned with the face portion opening along the vertical plane so as to locate the lower edge as a portion of the deflector most remotely below the horizontal plane, the deflector assembly further including a canopy portion spaced from the upper edge to define a single flow opening of the deflector assembly for water to pass through, the canopy portion having a free end defining a linear profile extending the entire length between the first and second arms parallel to the horizontal plane, wherein the canopy further having has a surface distal to the outlet and generally parallel to the longitudinal axis above an area to be protected, the distal surface consisting of a generally flat surface generally perpendicular to the vertical plane passing through the longitudinal axis, the canopy portion being coupled to the face portion by the first and second arms of the deflector assembly, and when the sidewall fire sprinkler is paired with an identical sidewall fire sprinkler mounted approximately sixteen feet apart on a generally planar wall surface with a collection area of approximately sixteen feet between the sprinklers and sixteen feet away from one of the sprinklers, the collection area located at either one of a distance of about thirty six inches and a distance of approximately six feet and 7.5 inches below each of the sidewall fire sprinklers so that water is delivered to the collection area at an average density of about 0.15 gallons per minute per square feet.~~

47. (Currently amended) ~~An extended coverage, horizontal sidewall automatic fire sprinkler comprising:~~The sprinkler of claim 1, wherein

~~a generally tubular body defining a passageway along an axis, the passageway having a the K factor greater than 9 comprises a K factor greater than 9 and up to about 14, where the K factor represents a flow of fluid in gallons per minute through the passageway divided by the square root of the pressure of fluid fed to the generally tubular body in pounds per square inch gauge;~~

~~a closure proximate an end of the generally tubular body;~~

and the trigger is a heat responsive trigger that retains the closure to occlude the passageway until actuation of the trigger; and

~~a deflector being symmetrical about an imaginary vertical plane and divided by an imaginary horizontal plane that is orthogonal to the vertical plane, the axis defining the intersection between the vertical and horizontal planes, the deflector assembly coupled to a yoke adjoining the tubular body and spaced from the outlet, the deflector transforming water being discharged horizontally from the outlet, upon release of the closure by actuation of the trigger, over a generally horizontal extended coverage area so as to control a fire in the coverage area, the deflector having a first arm, a second arm and a generally planar face portion extending generally orthogonal to the axis, the face portion having a single face portion opening coupled to the yoke to support the face portion spaced from the outlet, the face portion having an upper edge located above the horizontal plane and a lower edge located below the horizontal plane extending parallel to the horizontal plane and perpendicular to the vertical plane, the face portion having a bottom center extending below the horizontal plane centrally axially aligned with the face portion opening along the vertical plane so as to locate the lower edge as a portion of the deflector most remotely below the horizontal plane, the deflector assembly including a canopy portion being spaced from the upper edge and coupled to the face portion by the first and second arms so as to define a single flow opening of the deflector for water to pass through, the canopy portion having a free end defining a linear profile extending the entire length between the first arm and the second arm parallel to the horizontal plane, and when the sidewall fire sprinkler is paired with an identical sidewall fire sprinkler mounted approximately sixteen feet apart on a generally planar wall surface with a collection area of approximately sixteen feet between the sprinklers and sixteen feet away from one of the sprinklers, the collection area located at either one of a distance of about thirty six inches and a distance of approximately six feet and 7.5 inches below each of the sidewall fire sprinklers so that water is delivered to the collection area at an average density of about 0.15 gallons per minute per square feet.~~

48. (Currently amended) ~~An extended coverage, horizontal sidewall automatic fire sprinkler comprising:~~ The sprinkler of claim 1, wherein

~~a generally tubular body defining a passageway along an axis, the passageway having a the K factor greater than 9 comprises a K factor greater than 9 and up to about 14, where the K factor represents a flow of fluid in gallons per minute through the passageway divided by the square root of the pressure of fluid fed to the generally tubular body in pounds per square inch gauge;~~

~~a closure positioned proximate an outlet of the tubular body so as to occlude the passageway;~~

~~a heat responsive trigger that retains the closure to occlude the passageway until actuation of the trigger; and~~

~~a deflector being symmetrical about an imaginary vertical plane and divided by an imaginary horizontal plane that is orthogonal to the vertical plane, the axis defining the intersection between the vertical and horizontal planes, the deflector being coupled to a yoke adjoining the tubular body and spaced from the outlet, the deflector transforming water being discharged horizontally from the outlet upon release of the closure by actuation of the trigger over a generally horizontal extended coverage area so as to control a fire in the coverage area, the deflector having a first arm, a second arm and a generally planar face portion extending generally orthogonal to the axis, the face portion having a face portion opening coupled to the yoke to support the face portion spaced from the outlet, the face portion having an upper edge located above the horizontal plane and a lower edge located below the horizontal plane extending parallel to the horizontal plane and perpendicular to the vertical plane, the face portion having a bottom center extending below the horizontal plane centrally axially aligned with the face portion opening along the vertical plane so as to locate the lower edge as a portion of the deflector most remotely below the horizontal plane, the deflector assembly further including a canopy portion spaced from the upper edge to define a single flow opening of the deflector for water to pass through, the canopy portion having a free end defining a linear profile extending the entire length between the first and second arms parallel to the horizontal plane, the canopy portion being coupled to the face portion by the first and second arms symmetrical to the axis, and the first and second arms of the deflector defining the single flow opening having have a distance of about 1.5 inches between proximal surfaces of the first and second arms, and when the sidewall fire sprinkler is paired with an identical sidewall fire sprinkler mounted~~

~~approximately sixteen feet apart on a generally planar wall surface with a collection area of approximately sixteen feet between the sprinklers and sixteen feet away from one of the sprinklers, the collection area located at either one of a distance of about thirty-six inches and a distance of approximately six feet and 7.5 inches below each of the sidewall fire sprinklers so that water is delivered to the collection area at an average density of about 0.15 gallons per minute per square feet.~~

49. (Currently amended) The sprinkler according to ~~claim 45,~~ claim 48, wherein the deflector transforms water at a rate of at least 38 and up to about 48 gallons per minute discharged horizontally from the outlet at a density of at least 0.15 and up to about 0.20 gallons per minute per square feet over the extended-coverage area.

50-61. (Canceled)

62. (Previously Presented) The sprinkler of claim 1, wherein the canopy portion comprises a surface distal to the central axis, the distal surface consisting of a generally flat surface parallel to the central axis.

63. (Currently amended) ~~An extended coverage sidewall automatic fire sprinkler comprising:~~ The sprinkler of claim 1,

~~a generally tubular body with a central passageway and a central axis, one end of the passageway forming an outlet at one end of the tubular body,~~

~~the yoke further comprising a frame arm being coupled to the one end of the generally tubular body; and~~

~~a closure proximate the one end of the generally tubular body;~~

~~the sprinkler further comprising a liquid-filled glass bulb positioned to releasably retain the closure at the outlet closing the passageway; and~~

~~a deflector being symmetrical about an imaginary vertical plane and divided by an imaginary horizontal plane that is orthogonal to the vertical plane, the central axis defining the intersection between the vertical and horizontal planes, the deflector assembly being coupled to~~



~~the generally tubular body by the frame arm, the deflector facing and spaced axially away from the outlet and intersecting the central axis, the tubular body having a K-factor greater than 9, the deflector having a first arm, a second arm and a generally planar face portion generally orthogonal to the central axis, the face portion having a face portion opening engaged with the frame arm to support the face portion spaced from the outlet, the face portion having an upper edge located above the horizontal plane and a lower edge located below the horizontal plane extending parallel to the horizontal plane and perpendicular to the vertical plane, the face portion having a bottom center extending below the horizontal plane centrally axially aligned with the face portion opening along the vertical plane so as to locate the lower edge as a portion of the deflector most remotely below the horizontal plane, the deflector further including a canopy portion being spaced from the upper edge and coupled to the face portion by the first and second arms so as to define a single flow opening of the deflector for water to pass through, the canopy portion further including a first canopy end and extending generally along the central axis away from the outlet towards a free end, the first canopy end being spaced at a first distance from the outlet, the free end defining a linear profile extending the entire length from the first arm to the second arm parallel to the horizontal plane and spaced from the outlet at a second distance greater than the first distance, and the deflector being shaped and positioned so that upon release of the closure by the trigger, the deflector transforms water discharged horizontally from the outlet into a spray pattern of water droplets dispersed over a generally horizontal, generally rectangularly shaped extended coverage area of more than one hundred square feet located on one side of the sprinkler effective to control an ordinary hazard fire in the coverage area, and when the sidewall fire sprinkler is paired with an identical sidewall fire sprinkler mounted approximately sixteen feet apart on a generally planar wall surface with a collection area of approximately sixteen feet between the sprinklers and sixteen feet away from one of the sprinklers, the collection area located at either one of a distance of about thirty six inches and a distance of approximately six feet and 7.5 inches below each of the sidewall fire sprinklers so that water is delivered to the collection area at an average density of about 0.15 gallons per minute per square feet.~~

64-74. (Canceled)